

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claim 1 (previously presented): A method for the production of a metal oxide, wherein at least one metal oxide precursor is dissolved in a high enthalpy carboxylic acid solvent comprising at least one carboxylic acid with a mean carbon content of at least 2.2 carbon atoms in an amount of at least 60 % of the whole solvent to form a solution, and wherein said solution is then formed into droplets and flame oxidized.

Claim 2 (previously presented): The method of claim 1, wherein the carboxylic acid content is at least 75 %.

Claim 3 (previously presented): The method of claim 1, wherein the at least one carboxylic acid has a mean carbon content per acid group of at least 3.

Claim 4 (previously presented): The method of claim 1, wherein the carboxylic acid is selected from C1 to C18 monocarboxylic acids and mixtures thereof.

Claim 5 (previously presented): The method of claim 4, wherein the carboxylic acid is a mixture of formic acid and/or acetic acid and at least one further acid with at least 3 carbon atoms.

Claim 6 (previously presented): The method of claim 1, wherein at least one of the carboxylic acids comprises one or more –OH and/or –NH₂ and/or –CONH₂ groups.

Claim 7 (previously presented): The method of claim 1, wherein the solvent has an enthalpy of at least 15 kJ/g.

Claim 8 (previously presented): The method of claim 1, wherein the metal oxide precursor is a salt or a salt precursor.

Claim 9 (previously presented): The method claim 1, wherein the flame has a temperature of at least 1000°C.

Claim 10 (previously presented): The method of claim 1, wherein the droplets have an average diameter of 0.1 to 100 microns.

Claim 11 (previously presented): The method of claim 1, wherein the metal is selected from the alkali metal group and/or the alkaline earth metal group and/or the transition metal group.

Claim 12 (previously presented): A metal oxide that is obtainable by a method of claim 1.

Claim 13 (previously presented): A metal oxide according to claim 12, that has a surface after heat treatment at 900°C for 2 hours in air of at least 39 m²/g.

Claim 14 (previously presented): A metal oxide according to claim 12, that is ceria/zirconia.

Claim 15 (previously presented): The metal oxide of claim 14, with the zirconium being present in at most 90 atom-% of total metal atoms.

Claim 16 (previously presented): A metal oxide according to claim 14, that is phase stable upon heating at 900°C for 2 hours in air.

Claim 17 (previously presented): A metal oxide according to claim 14, wherein the two or more metals are homogeneously mixed at atomic level.

Claim 18 (previously presented): A metal oxide according to claim 12, that has a dynamic oxygen storage capacity after heat treatment at 700°C for 16 hours in air of at least 1.5 liters O₂ per kg catalyst.

Claim 19 (previously presented): A metal oxide according to claim 12, that is zirconium stabilized with cerium and/or yttrium, in an amount of cerium and/or yttrium of at most 10 atom-% of whole metal content.

Claims 20-27 (canceled)

Claim 28 (new). The method of claim 1, wherein the at least one carboxylic acid has a mean carbon content per acid group within the range of 4 to 8.

Claim 29 (new). The method of claim 1, wherein at least one of the carboxylic acids comprises double bonds and/or substituents.

Claim 30 (new). The method of claim 1, wherein the solvent has an enthalpy of at least 20 kJ/g.

Claim 31 (new). The method of claim 1, wherein the solvent has an enthalpy of at least 23 kJ/g.

Claim 32 (new). The method of claim 1, wherein the metal oxide precursor is an organic group comprising salt.

Claim 33 (new). The method of claim 32, wherein the salt is purely organic.

Claim 34 (new). The method of claim 1, wherein the metal oxide precursor is a salt of at least one carboxylic acid and/or acetylacetonate.

Claim 35 (new). The method of claim 1, wherein the salt or salt precursor comprises a hydrate.

Claim 36 (new). The method of claim 9, wherein the temperature is within the range of 1600 to 2600°C.

Claim 37 (new). The method of claim 1, wherein the droplets have an average diameter within the range of 1 to 20 microns.

Claim 38 (new). A metal oxide according to claim 12, that has a surface after heat treatment at 900°C for two hours in air of above 50 m²/g.

Claim 39 (new). A metal oxide according to claim 12 that is a mixed metal oxide.

Claim 40 (new). The metal oxide of claim 15 wherein the zirconium is present in at most 80 atom-% of total metal atoms.

Claim 41 (new). A metal oxide according to claim 12, that is zirconium stabilized with cerium and/or yttrium.